REMARKS/ARGUMENTS

Claims 1-18 stand rejected in the outstanding Official Action. Claims 1 and 3 have been amended and newly written claims 19 and 20 offered for consideration. Accordingly, claims 1-20 are the only claims remaining in this application.

The drawings are objected to as including a reference character which is not mentioned in the description contained in the specification. Applicant has amended the specification at page 15 to refer to element number 310 in Figure 4B, thereby mentioning the element in the specification. Any further objection to the drawings is respectfully traversed.

The abstract of the disclosure has been objected to as exceeding 150 words. Applicant has submitted a revised abstract with less than 150 words, thereby obviating the objection.

The Examiner's suggested title for the invention is acceptable to Applicant and has been implemented in the above amendment.

Claim objections are made with respect to claims 3-5, with the Examiner noting there is a lack of literal antecedent basis for the term "prefetch logic" as used in claim 3, lines 26 and 28 on page 19. Applicant has amended the reference to "prefetch logic" so as to read "prefetch unit" both in independent claim 1, as well as dependent claim 3. Thus, there is clear antecedent basis for the term "prefetch unit" which is not to be confused with the term "prediction logic" also used in Applicant's independent claim 1. In view of this amendment, any further objection to claims 3-5 is believed to have been obviated.

Claims 1-9 stand rejected under 35 USC §112 as lacking literal antecedent basis for the phrase "prefetch logic" used in claim 1 and claim 3. As noted above, Applicant has amended this phrase to read "prefetch unit" which had literal antecedent basis in line 3 of claim 1.

1100197

Accordingly, in view of the above amendments to claims 1 and 3, there is believed no further basis for rejection of claims 1-9 under 35 USC §112 and any further rejection thereunder is respectfully traversed.

Claims 10 and 13 stand rejected under 35 USC §101 as allegedly being directed to non-statutory subject matter. The Examiner suggests that §101 requires an expression in a claim indicating a "tangible 'real world' result." Applicant's review of §101 indicates patentable subject matter is comprised by "any new and useful process, machine, manufacture, or composition of matter . . . ." There is no requirement in the statute of any "tangible end results" or "tangible 'real world' result." Accordingly, the Examiner's requirement is respectfully traversed.

Additionally, Applicant notes that claims 10 and 11 are method claims denoting a series of steps in which a particular process is carried out. The combination of steps resulting in the determining "as the fetch address, an address obtained from the return stack" is the useful result obtained from the claimed process. §101 specifically states that any "new and useful process" may be patented, and claims 10 and 13 specify the steps of Applicant's claimed process. As is well known by those of ordinary skill in the art, the "determining" step produces a tangible result by indicating that an address obtained from the return stack is the "fetch address," and thus this fetch address can be used in further processing in the data processing apparatus. This is a tangible real world result and is specifically set out not only in claim 10, but dependent claim 13 (dependent on claims 12 and 10).

Accordingly, any further objection to claims 10 and 13 under 35 USC §101 is respectfully traversed.

1100197

Claims 1-18 stand rejected under 35 USC §102 as anticipated by McMahan (U.S. Patent 5,692,168). The Court of Appeals for the Federal Circuit has noted in the case of *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 USPQ 481, 485 (Fed. Cir. 1984) that "[a]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim."

The final paragraph of Applicant's independent claim 1 specifies "the prefetch unit for determining, as the fetch address, an address obtained from the return stack." This is specifically where "the prefetched instruction is a first type of instruction flow changing instruction and **is conditional**" (emphasis added). The McMahan reference defines "returns" (the alleged teaching of a "flow changing instruction" as being **non-conditional** and, as will be seen, specifically illustrates that retrieval of return addresses from the return stack is performed as a bookkeeping measure to improve the performance of a target cache and is unrelated to any conditional branching as required by the present claims.

McMahan discloses a system wherein a prefetch unit includes a flow control for controlling the transfer of instruction bytes from a prefetch buffer to a decoder and is particularly concerned with using flow control bits to identify changes of flow (COFs) in the code stream. Instruction bytes gathered in a prefetch buffer are only transferred to the decoder of an execution unit when the flow control bits indicate a change of flow, if the predicted change of flow instruction is confirmed as having been decoded (see the McMahan abstract).

It should be noted that McMahan specifically identifies returns as being **unconditional** change of flow (UCOF) instructions ("branch processing unit 40 provides target prefetch addresses for predicted taken branches (including loops) and unconditional change of flow

1100197

(UCOF) instructions (jumps, calls, **returns**) . . . " (emphasis added) (column 10, lines 57-60), and "COF instructions are either . . . or (b) 'unconditional COFs or UCOFs' which are jumps, calls, **returns**" (emphasis added) (column 12, lines 27-30)). As noted above, the present invention is concerned with providing a return stack onto which an address corresponding to the return from a procedure call is pushed when such a procedure call is predicted as taken (see page 15, lines 14-17 and step 425 of Figure 4B. Thereafter, if a conditional procedure return is predicted to be taken, an address is popped from the return stack (as discussed on page 14, lines 14-31 and step 335 of Figure 4A). Because McMahan, as noted above, specifically requires that procedure returns ("returns") are unconditional, there would be no reason for McMahan to predict whether a procedure return would be taken, as they are **always, i.e.,** "unconditionally" taken.

While the Examiner correctly notes that McMahan does disclose a return address stack, this is used for a completely different purpose (and is not connected as per applicant's claim) , i.e., where a target address will be wrong and the needed R2 is popped from the return address stack and is taken instead of R1. Applicant does not believe it necessary to conduct a detailed discussion of why the McMahan reference utilizes the return address stack 132. It is only incumbent upon Applicant to establish that McMahan requires that procedure returns be **unconditional** (as is demonstrated above) which is the direct opposite of Applicant's claimed **conditional** procedure return which, if predicted to be taken, causes an address to be popped from the return stack.

Thus, the claimed requirement that the prefetched instruction is a COF instruction and "is conditional" is the direct opposite of the teachings of McMahan's requirement that defines the

returns as "non-conditional." Thus, McMahan cannot render obvious the subject matter of Applicant's claim 1, let alone anticipate the claimed subject matter. As a result, any further rejection of claims 1-18 over the McMahan reference is respectfully traversed.

While the above arguments are with respect to independent claims 1 and 10, claims 2-9 and 11-18 directly or indirectly depend from these independent claims and therefore the dependent claims are also believed allowable.

Applicant offers two newly written claims 19 and 20 and requests the Examiner to enter and consider these claims as well.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that claims 1-20 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone discussion will facilitate allowance of one or more of the above claims, he is respectfully requested to contact Applicant's undersigned representative.

Respectfully submitted,

NIXON & VANDERHYE P.C.

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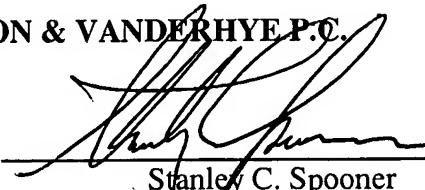
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1100197